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ABSTRACT

The relationships between locus of control and other personality variables were studied, using the Nowicki-Strickland Scale. The broad hypotheses were that internal locus of control would be related to a number of other competence-type behaviors and adaptive social functioning. Results of various studies are presented, and it is concluded that the Nowicki-Strickland Locus of Control Scale appears to offer an objective, relatively precise, quick method for assessing a generalized belief in locus of control and that the locus of control dimension is a significant correlate of a number of competence related behaviors in children. (DB)

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Behavioral Correlates of the Nowicki-Strickland Locus of Control Scale for Children

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Considering the previous research with internal-external control of reinforcement, a number of research areas become immediately apparent with a methodologically sound, generalized locus of control measure for children. Particularly building on the early research of Crandall, Katkovsky and Crandall (1965), with the Intellectual Achievement Responsibility Questionnaire, one area of obvious interest is the investigation of a generalized belief in locus of control in relation to academic success. As Nowicki and Strickland (1971) have reported earlier, significant relationships were found between Nowicki-Strickland scale scores and school achievement for third through tenth grade males with the internal males doing better in school than the males identified as external. Nowicki (1971b), with an adult form of the scale (modified predominantly by changing the word "kids" to "people" and eliminating the items concerning parents), using 44 college males as subjects also found a significant relationship between internal locus of control and college grade point averages ($r = -.50$ $p < .01$). Both of these studies report no relationship between locus of control and intelligence as assessed by traditional paper and pencil intelligence measures.

Roberts (1971), working with Boyd McCandless in a research project designed for lower socio-economic children in an urban poverty area, administered the Nowicki-Strickland scale, along with a number of other measures, to third and seventh grade males and females. For seventh graders, he found significant correlations between internal locus of control and reading achievement for both sexes and a significant relationship with mathematics achievement for males but not females. With the third grade students, he found no significant relationships between the school achievement measures and locus of control but he did find significant relationships between internal scores and self esteem as measured by the Coopersmith and Pierce Harris instruments, for both males and females. This finding was also significant for seventh grade females.

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With regard to concept formation, Ludwigsen and Rollins (1971) in an attempt to further delineate those conditions and individual characteristics that lead to effective performance on a visual recognition task manipulated two cue conditions for sixth graders of high and low socio-economic status. They found that internals, as assessed by the Nowicki-Strickland scale, performed better than externals and the self initiated cue group did better than the group for whom verbal cues were supplied. For high socio-economic subjects, only cue source differentiated performance. In the lower socio-economic group,

however, cue source, locus of control and their interaction were all determining factors.

Obviously, there are a number of variables to consider when investigating locus of control in relation to academic success including sex, age, socioeconomic status, content areas of school achievement, and other personality dimensions that are relevant to achievement behavior. While further research is clearly necessary, particularly in regard to sex-linked achievement behaviors, it does appear that the locus of control dimension is a variable of significant impact in relation to school achievement for males, including black students from lower socio-economic backgrounds.

From the early research of Battle and Rotter (1963) and Lefcourt and Ladwig (1965), it is expected that locus of control scores will vary as a function of race and socio-economic placement. Nowicki and Strickland (1971) have tentatively concluded that internality as assessed by the Nowicki-Strickland scale, again for males, is related to higher socio-economic status as determined by parental occupational level. These finding are not as clear when socio-economic status is determined by parental education. Ludwigsen and Rollins (1971) using the father occupational scale on the Warner, Meeker, and Eels Index of Status Characteristics as a further check on students attending either a low to lower-middle or high socio-economic school found higher socio-economic sixth graders significantly more internal than their lower socio-economic counterparts. In regard to race, Negro children generally, appear to have more external scores than do white children (Strickland, 1971). However, these findings must be considered tentative until further research teasing out the relative contributions of race ard socio-economic status to locus of control is completed. Gurin and others (1969) have criticized the original adult Internal-External scale, devised by Rotter and his colleagues (1966), as being an inappropriate measure for comparison purposes between Negro and white subjects. They found that differences on Internal-External scores in relation to race were predominantly a function of response differences on the "ideological" as opposed to the "personal" control items. While white subjects answer both kinds of items to the same degree, Negro subjects were likely to answer the "ideological" items in a more external fashion than whites. Negro and white subject responses to the "personal" control items were much the same. We feel that the Nowicki-Strickland scale avoids this difficulty to a great degree in that very few ideological or political itmes are used. However, it may also be that at the younger ages, black students may not yet be as aware of general institutionalized racism as are the adults.

Aside from school related behaviors, we were also interested in understanding the relationships between locus of control and other personality variables. Generally, our broad hypotheses were that internal locus of control would be related to a number of other competence type behaviors and adaptive social functioning. Nowicki and Roundtree (1971) administered the Nowicki-Strickland scale to 38 females and 49 males in a twelfth grade class at a suburban high school. They also noted involvement in extracurricular activities and collected modified sociograms

on which students indicated the other members of the class that they would call friends and those for whom they would vote for class president. Ordinal family positions, achievement data and intelligence test scores were also recorded. As in other research, they found no relationship between locus of control and intelligence scores but they did find a significant correlation ($r = -.44$, $p < .01$) between internality and achievement scores for males while the correlation for females was non-significant ($r = .13$). Additionally, while there was no relationship between locus of control and votes received for friend, they found that internal males received significantly more votes for class president than any other groups. Females were involved in more extracurricular activities than males and the degree of their involvement was significantly related to internality. Nowicki (1971a) extended this research on popularity to third, seventh and tenth grade students and again found that for males, but not for females, internal locus of control was related to votes received for class president. Nowicki and Barnes (1971) with Negro adolescent males in a camp situation also found that internal scores were related to total votes received for friend and camp president. Nowicki (1971a) theorizes that locus of control is an important characteristic for males as they perform their expected role behavior, i.e., achieving and being respected and liked for their competence even as early as age nine. Whether the competence behavior precedes the generalized belief in internal control or the belief precedes the behavior is unknown at this time. An expressed belief in internality does not seem to be as important for females as for males.

A variable often considered to be a correlate of maturity and impulse control is the ability to delay small rewards for later, larger reinforcements. Strickland (1971) attempted to relate delay of gratification to locus of control by having experimenters offer sixth grade subjects a small reward immediately following the completion of an assigned task or a larger reward if the students would wait for the experimenters to return to the school at a later date. She found that in a predominantly middle class school, white students who were assessed as internal on the Nowicki-Strickland scale were significantly more likely to delay reinforcement than were the external students. This relationship did not hold for black students in a lower class school. Strickland (1971) replicated this finding with white children using 8, 9, and 10 year olds as subjects.

Considering other personality variables, Nowicki (1971b) has found that internal locus of control scores, as determined by the Nowicki-Strickland scale, for 30 college males were significantly related to achievement, endurance, orderliness, intraception and affiliation and negatively related to need for change, as assessed by the Adjective Check List. Strickland and Hill (1971) found that a group of eight to eleven year old males with severe reading problems were more likely to be external than a control group of males matched for age and grade in school. These experimenters also found some interesting results in relation to developmental aspects of locus of control. Within their control, or normal, sample of young males, they found that internal scores on the Nowicki-Strickland scale were significantly related to teacher identification

($r = -.44$, $p < .05$) with a nonsignificant trend toward mother ($r = -.18$) and father identification ($r = -.24$). That is, the internal males were more likely than the external males to place themselves close to the adult figures on a social self esteem measure. These results were somewhat replicated in the sample of males with reading problems with correlations high but not significant at conventional levels. Correlations of -.33, -.25, and -.33 were found between internality and teacher, mother and father identification respectively. Hollender (1971) with a group administration of a modified social self esteem measure failed to replicate these findings with fourth and fifth grade students. He did find, however, using the Comfortable Interpersonal Distance Scale, that external males were more likely to distance teachers than were internal males and internal females were significantly more likely than external females to report having had physical contact with their fathers. Hollender tentatively suggests that physical contact of a nurturant sort may play a role in the development of internality in females. One other finding is available in regard to developmental aspects of a belief in locus of control. Nowicki and Roundtree (1971) found that relative to family ordinal position, as subjects moved from first to last born, the more likely males were to become external and females to become internal. Obviously, all of these results must be viewed with caution since so little research has been completed. Nonetheless, they are reported here because it is of considerable importance to attempt to understand some of the antecedent conditions, particularly in regard to parental characteristics and child-rearing practices, that lead to the development of a generalized expectancy for internal or external control of reinforcement. Further research investigating the familial and social conditions specifically in regard to the patternings of reinforcement and punishment of children following independent behavior is clearly warranted.

In considering social patterning and interpersonal interaction, some intriguing new research has recently been conducted with results that suggest that a belief in external control of reinforcement among white children is related to prejudice against Negroes, at least in a Southern population. In a sample of elementary school children, using the Comfortable Interpersonal Distance Scale, Duke and Nowicki (1971) found that white external males were significantly more likely than internal males to distance Negro peers. In a high school sample, both male and female external white students distanced Negro peers to a significantly greater degree than the internal students did. Duke and Nowicki interpret these findings as suggestive that external whites who feel less control over what happens to them may try to maintain a safe stance by keeping feared objects or persons away from themselves. Internals, on the other hand, feeling more control over their life situations are not afraid to allow others different from themselves to come close. Nowicki and Duke (1971) replicated this research using Negro elementary school children as subjects and found that contrary to the overall results in the white populations, Negro females who were external indicated less distancing for white peers than did internal Negro females. The external

Negro male continued to distance white female peers but not white male peers. Obviously, there are some rather complicated relationships occurring particularly in regard to sex of peer but the finding of a reversal in distancing of opposite race peers as mediated by locus of control raises a number of interesting questions.

With clear evidence, particularly for males, that a belief in internal control of reinforcement is a correlate of school achievement, social attraction, ability to delay gratification and for white children tolerance towards Negroes, another immediate question is raised. Assuming that a generalized belief in internal control is related to competence and social maturity and a correlate of independent, striving, self motivated behavior, in what ways can a belief in external control be lessened so that a youngster comes to feel that the events which happen to him are a result of his own behaviors and do not occur at the whim of powerful others or because of luck, chance or fate? While little research is available at the moment elucidating the ways via which locus of control beliefs can be modified, Nowicki and Barnes (1971) have completed one study that sheds some light on this matter. The Nowicki-Strickland scale was administered to 291 seventh, eight, and ninth grade males, predominantly black, from inner city ghetto schools as they entered a structured camp situation in which the counselors took pains to make clear the connection between the camper's behavior and resultant rewards. For example, at an "Indian ceremony" campers were initiated into "bravehood" with the recounting of an actual deed showing how the camper deserved to become a brave (such as paddling a canoe over one mile). The Nowicki-Strickland scale was readministered at the end of the camp period one week later and for campers who returned for a second week again at the end of their camp session. As hypothesized, campers were more internal on the last administration of the scale than they were at the first and for some the second, testing. With this significant modification of scores occurring within such a short time, it is highly likely that research directed toward modification of external scores over longer periods of time such as within classroom situations would also demonstrate significant results. Research conducted around the general procedure of modifying belief systems must, of course, be pursued with caution.

Generally, research across diverse populations of children focusing on a number of different areas has been generally supportive of the predictive validity of the Nowicki-Strickland scale. Continued research is in progress with further attempts to identify other behavioral correlates of internal-external beliefs in children (Waters, 1971) and to understand how locus of control is related to different ways of searching for, perceiving, and using information (Ludwigsen, 1971). Additionally, a large scale research project is under way in Israel attempting to replicate and perhaps extend results found in this country with locus of control in relation to prejudice, demographic and achievement variables. The Nowicki-Strickland Locus of Control Scale appears to offer an objective, relatively precise, quick method for assessing a generalized belief in locus of control and

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the research findings suggest that the locus of control dimension is a significant correlate of a number of competence related behaviors in children.

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